REMARKS ON THE TREATMENT OF GONORRHOEA
IN MALTA.

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The irrigation treatment of gonorrhoea was introduced at Cottonera Hospital in 1905 and soon after in the other hospitals in Malta. As much was hoped from this treatment, an attempt was made to record all cases so treated in order to arrive at some idea of its value in actual practice. At Cottonera and at a later period in the other hospitals case sheets similar to the attached form were kept for all cases treated by irrigation and the results entered in a register when the man was discharged from hospital. At first I thought that fairly full clinical notes of each case could be kept and the results presented in tabular form. It soon became apparent, however, that this would involve an enormous amount of clerical labour and that the result would be merely a bewildering series of figures. The enquiry was therefore restricted to the headings dealt with below.

The cases were all consecutive and in no way selected. The total number given under each heading differs, as sheets which were not complete in any particular have not been included in that group; the elimination of incomplete sheets when compiling the results of each group has added considerably to the labour of preparing these apparently simple statistics.

Routine.—On admission the penile discharge is microscopically examined and the result, together with that of Thompson's two glass test, is entered on the case sheet. On subsequent mornings, each man on rising passes his urine into the two glasses in the presence of the ward orderly, who then locks them up in the ward bunk till the medical officer's visit, when each man presents himself in turn with his two glasses and the orderly hands his case sheet to the medical officer. Having the clinical history of the case and the urine in front of him the medical officer can rapidly make up his mind as to what change, if any, is needed in the treatment and enter this on the case sheet. By using simple abbreviations the clerical work can be reduced to a minimum.

Treatment.—The treatment usually employed was as follows:—

In very acute cases the man was kept in bed till his symptoms had subsided; in the ordinary mildly acute case the man was
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allowed up with his bed down, and the chronic case was kept up from the start. Diet: All acute cases were kept on milk diet with porridge and barley water till the scalding had ceased, and were then placed on ordinary diet. In a relaxing climate like that of Malta patients easily become debilitated if kept on a monotonous diet of milk (which in Malta is always tinned); once a patient becomes "hospitalised" he seems to be incapable of combating the gonococcus and the disease assumes a subacute form which continues indefinitely.

Internal Medication.—On admission a smart purge is given, and to keep the bowels acting freely white mixture is ordered in the morning. When the weather is hot and damp, white mixture has a great tendency to produce alkaline urine with copious phosphatic deposit, and when this occurs the subacute stage of the disease is much prolonged. During the acute stage I usually give 5 grains of citrate of lithium and 10 grains of urotropin three times a day. This helps to relieve the scalding, and does not seem to do any harm. When the subacute stage is reached, balsam of copaiba, sandal-wood oil, or cubebs are usually prescribed. I must say that I am very sceptical as to the good effected by these drugs, but they have a certain reputation, and their use is therefore justified, while at the same time they are so unpleasant that their administration is likely to have a deterrent effect when the soldier feels inclined to run the risk of a re-admission for the same disease. Benzoic acid, 15 grains thrice daily, has a decidedly beneficial effect when the urine is turbid, but in my experience none of these drugs given by the mouth are of much use.

Treatment of the Urethra.—With the rare exception of the very acute case, we use irrigation morning and evening and begin at once. This seems to me to be perfectly rational, for the only medium on which the gonococcus can be cultivated with ease and certainty is the urethral (or conjunctival) mucous membrane; the patient is, however, not admitted to hospital for the purpose of cultivating gonococci on his urethral mucous membrane, but in order to get rid of those already there, and as soon as possible. Irrigation is stated to cause a variety of unpleasant complications, and the old surgical maxim, that an inflamed tissue should be kept at rest, is quoted as a reason for doing nothing to interfere with the growth of the gonococcus. The inflammation is rarely, however, of great intensity, and is entirely due to the gonococcus. It stands to reason, then, that the removal of the exciting agent should produce a diminution in the degree of inflammation present.
Practice supports this theoretical consideration, as it is precisely in the acute stage that the greatest improvement results from the use of irrigations, scalding quickly disappears, and chordee is rare when this treatment is followed. There are certainly a few exceptional cases in which the patients complain of pain after irrigations, and for these rest in bed and barley water flushings may be employed. The action of the irrigation is mainly a mechanical one: it washes away the gonococci and their toxins lying free on the surface, and at the same time gently massages the urethral mucous membrane, and so causes a serous exudation, which carries the gonococci lying between the epithelial cells to the surface, ready to be removed by the next irrigation. The actual drug employed for the purpose of irrigation is of secondary importance, provided the solution be weak. We make most use of potassium permanganate, 1 to 2 grains to the pint, next to that of silver nitrate, 2 grains to the pint, or albargin, 2½ to 5 grains to the pint. Albargin seems to exert a good effect when the urine shows a very pale haze, but, in general, it is inferior to the other two drugs.

Standard of Cure.—How are we to know when a gonorrhoea is cured? This, in many cases, is a most difficult question to answer. The absence of a penile discharge is of little or no help. When the discharge has entirely ceased and the urine remains clear for five successive mornings, in spite of a diet which contains a daily pint of beer, we may fairly assume that the disease has been cured, and return the man to duty. But in many cases a few threads or a little mucus persist in spite of every change of treatment, and even of stopping treatment altogether; when careful microscopic examination fails to reveal the presence of any gonococci, what are we to do? Latterly, I have stopped all treatment and ordered the man a pint of beer and 4 ounces of pickles daily for five days; if this fails to produce any increased turbidity or mucoid discharge I have returned the man to duty, and when possible have kept him under observation. Major Master, R.A.M.C., has kept a number of these cases under observation at Intarfa, while performing their duty, and in practically every case the urine has cleared up in from one to five weeks.

With these preliminary remarks I will proceed to give my results.

Time in Hospital.—I have collected the sheets of 962 patients who began and finished their treatment by the irrigation method; the total number of days in hospital for these men was 34,981,
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making an average of 36.36 for each case. Included in the above were 34 men admitted to hospital for the first attack of gonorrhoea, in whom only the anterior urethra was attacked, and none of whom had a relapse after discharge from hospital; their total days in hospital were 652, or an average of nineteen days per case. Against this there were 121 of my own cases admitted for the first attack of gonorrhoea, but in whom the posterior urethra was infected on admission. These men spent 4,053 days in hospital, or an average of 33.5 days for each case. Major Crawford, R.A.M.C., had thirty-five consecutive cases which were treated by irrigation three times a day; the average time in hospital for these cases was seventeen days, and none of them had a relapse.

Several factors have an important bearing on the time required to effect a cure, viz.:

(1) The Situation of the Gonococci.—If these are still on the surface, almost any drug will destroy them, even hot water in one case quoted to me; but when the gonococci have succeeded in penetrating the epithelial lining of the various ducts and follicles opening into the urethra they are perfectly protected from any attack, whether by internal medication or via the urethra.

(2) The Man’s own Resisting Powers.—Anyone having had much to do with gonorrhoea must have remarked the very great differences which are shown by cases treated in the same way and under the same conditions. This can only be explained by the variable resistance possessed by different individuals to the gonococcus. When the germ has reached the drug-proof shelters afforded it under the epithelial lining of the accessory ducts, we are practically dependent on the man’s own bactericidal power; if this fails to help us, the gonococci may lie quiescent for years.

(3) The Test of Cure adopted by the Medical Officer.—If easily satisfied that the man is cured, it is possible to greatly reduce the time in hospital; enquiry would show a high ratio of relapses, which could, of course, be called fresh infections for the purpose of statistics.

(4) The Amount of Supervision exercised by the Medical Officer.—Even the best of orderlies are liable to become slack and to carry out the treatment in a perfunctory manner if the medical officer does not frequently superintend the treatment himself.

(5) Climate.—In a hot, debilitating climate, like that of Malta in the summer, men quickly become “hospitalised” and the disease assumes the subacute form, being barely, if at all, influ-
enced by any form of treatment. In these cases, a change to our hill station, Imtarfa, where there is an excellent modern hospital and the men can be allowed outdoor exercise, has been found to exert a most beneficial influence.

(6) Treatment.—I have put this last as the least important influence. In the condition in which the soldier usually reports sick with gonorrhoea, viz., with the whole urethra infected, I believe the form of treatment to be of quite secondary importance. Irrigations will reduce the length of the acute stage by some or many days, but we are then confronted with the subacute and chronic stages, which, in many cases, may drag on till the surgeon almost desairs of ever getting rid of the patient. Both Lieutenant-Colonel Gerrard and I have tried the soothing treatment advocated in the Journal by Major French. Our opinions are in agreement that the acute stage lasted much longer than when irrigations were employed, while the subacute and chronic stages were the same in both cases.

Relapses.—The percentage of relapses after any form of treatment is obviously the best test of its efficiency, much more so than the time spent in hospital. It is frequently very difficult to determine whether a subsequent admission is due to a fresh infection or to a recrudescence of the original attack; even when the man owns to having exposed himself to the risk of infection since leaving hospital, this may merely have acted as an exciting agent, and stirred up a latent focus to fresh activity. I have endeavoured to note all genuine relapses in the figures given below, but it is quite possible that some real relapses may have escaped being recorded, as the men are not always admitted to the same hospital. In 734 case sheets, which were specially watched for relapses, only thirty-four were recorded, which gives a percentage of 4.6; this, if maintained in a larger series of cases, would I think show that the standard of cure adopted is fairly reliable.

Condition on Admission.—From general impressions, I should have said that it was exceptional to find a man admitted with the infection limited to the anterior urethra. I find, however, that in 496 sheets in which the condition on admission is noted, seventy-two men were admitted with an anterior urethritis only; this is equal to 14.5 per cent., which agrees nearly with Taylor’s figures. Captain Meredith, R.A.M.C., had twenty-one of these cases, in nine of which the posterior urethra became infected subsequent to admission.

Number of Times admitted with Gonorrhoea.—This was
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originally recorded with the idea of only taking first attacks of the disease when working out the time spent in hospital; it was soon apparent that there was no constant difference in the length of time required to cure a first, second, or third attack, and that, if anything, the subsequent attacks seemed to be more quickly got rid of than the first one. The number of sheets in which this was recorded was 827. Of these:—

512 men = 62 per cent. (nearly) were admitted for the first attack.
224 " = 27 " " " second "
60 " = 7'2 " " " third "
31 " = 3'7 " " " more than three times.

Many of the later admissions took place years after the first one; a few are relapses.

Epididymitis.—It has been stated that irrigations, especially in the acute stage, are liable to produce a variety of complications, chief of which is epididymitis; notes were therefore made on the sheets as to the occurrence of epididymitis on admission or during treatment.

Of 896 recorded cases 74, or 8'3 per cent. (nearly), were admitted with this complication, while 43, or 4'8 per cent., developed epididymitis while being treated by irrigations.

Other Complications.—In 812 sheets the following complications have been noted:—

Haematuria, 11 times = 1'35 per cent. This is rarely severe, it usually lasts from three to ten days. The only treatment adopted was to stop the irrigations and put the men to bed with a milk diet, urotropin being continued by the mouth. As soon as the urine cleared up irrigations were resumed.

Arthritis occurred 15 times = 1'7 per cent. Most of the cases in this series happened to be of a mild type.

Gonorrhœal ophthalmia was noted in three cases; two of the men recovered perfect vision, one man whose eye had been infected for thirty-six hours before admission recovered vision sufficiently to distinguish large objects but not to read.

Œdema of the penis occurred four times; this comes on rapidly after an irrigation and looks very alarming. If left alone it disappears in about twelve hours and the irrigations can then be resumed.

Penile abscess, the pus containing gonococci, was noted eight times; about half of these were admitted with the abscess in progress of formation; under ordinary surgical treatment these healed up rapidly and left no permanent trouble.
Prostatic abscess occurred once.

Incontinence: One man was admitted for incontinence of urine; on examination an acute gonorrhoea was found.

Retention: Two men were admitted with retention of urine, both had been drinking heavily immediately before admission. Examination revealed acute gonorrhoea in both cases.

Pyelitis: One man who had treated himself out of hospital for a month before reporting sick developed a very severe cystitis with later on symptoms of pyelitis. He was treated with rest in bed, urotropin and alkalis and milk diet. Under this treatment he recovered sufficiently to be sent to England on trooping duty; on his return some two months later all signs of the disease had cleared up.

Penile Discharge.—It commonly happens that a penile discharge containing gonococci reappears while the man is still undergoing treatment, and in spite of the discharge the urine may remain clear. The discharge probably comes from some follicle near the meatus, but it is not easy to locate it even with the aid of the endoscope. The most common times for the reappearance of the discharge are about the fifteenth and thirtieth days of treatment.

Gonococci Vaccine.—Two varieties of vaccine have been tried; one made in St. Mary’s Hospital and the other by Burroughs Wellcome and Co. The dose of the first one is given as 5 million, and of the second 250 million for the first dose and 500 million for the second or subsequent doses. Up to the present fourteen cases have been treated by the first and thirteen by the second vaccine. The results seem to be much the same with either. There has been no local reaction, a great advantage, and consequently the soldier does not object to the use of the vaccine.

Without going into details of the cases our experience has been that in the chronic cases of gonorrhoea in which the infection is limited to the urethra no benefit has resulted from the use of the vaccine. This is specially disappointing, as it was hoped that these troublesome cases would be cured by this means. On the other hand, in every case which developed pyrexia there was a variable rise of temperature within a few hours of the first injection, followed by a rapid improvement; the temperature falling to normal in thirty-six to forty-eight hours. The improvement was most noticeable in cases of painful arthritis, the pain disappearing as the temperature fell and the swelling soon after; the pain of epididymitis was also quickly relieved. One case of severe arthritis of the knee-joint only derived a moderate benefit from the inocula-
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tion, but the supply of vaccine failed just when he should have had a second injection, and by the time a fresh supply was received from England the joint symptoms pointed to erosion of the cartilage; the next inoculation had very little effect on his condition and he was invalided home. In these cases the urine quickly reached the chronic condition but did not further improve.

I presume that we may interpret the presence of pyrexia as being due to the fact that the gonococci have gained entrance to the general circulation, and by this path to wherever the secondary focus happens to be; they are consequently exposed to the action of any antibodies formed as the result of the inoculation and circulating in the blood, hence the benefit produced by the vaccine. In chronic gonorrhoea limited to the urethra the gonococci lie between the epithelial cells, or between these and the non-vascular basement membrane which protects the gonococci from the action of any antibodies in the general circulation.

The introduction of the vaccine has given us a powerful remedy for the treatment of gonorrhoeal arthritis, and if only used at once we need no longer dread those prolonged cases of multiple arthritis which used to lie for weeks without any apparent improvement.

Conclusion.—In spite of the recent progress the treatment of gonorrhoea which has infected the whole urethra, i.e., in the condition in which the soldier usually presents himself, is still most unsatisfactory. Bed and barley water flushing, gentle injections or copious irrigations may and do in many cases produce a rapid improvement, and by selecting cases it is possible to present a series of brilliant results by any method of treatment; I cannot help thinking, however, that in these cases it is to the man's own resisting powers rather than to the particular form of treatment employed that the credit is due. Bacteriologists may succeed in finding some other germ which if introduced into the urethra will turn out the gonococcus without producing a worse disease or damaging the urethral mucous membrane. Personally, I favour the irrigation plan, as I feel certain that no harm results from its use, and in cases treated by rest and internal medication, when the urine remains persistently turbid a few irrigations will often make it clear although not free from mucus and threads. The only hope of real improvement lies in getting rid of the gonococcus before it has had time to penetrate the epithelial lining of the urethra and its accessory ducts. To accomplish this we must get hold of our patients as soon after infection as possible, long before the man has any idea as to whether he has contracted the disease
or not, or, in other words, the diagnosis must be made by the medical officer with the aid of a microscope, and not left to the soldier to decide as at present. Every man who has exposed himself to the risk of contracting gonorrhoea must be made to report himself for examination on the second and third morning after the exposure. A trained orderly can easily prepare stained slides of the penile mucus, and the medical officer can then rapidly examine these microscopically. The extra work involved by this procedure would be much less than that entailed by having every gonorrhoea patient some six weeks in hospital. The examination could be made after the morning parade, so as not to interfere unduly with the performance of duty.

For assistance in preparing these notes I am much indebted to Royal Army Medical Corps officers in Malta, especially Lieutenant-Colonel Gerrard, Major Crawford, Captains Bransbury, Meredith and Maugan.

**Specimen Gonorrhoeal Case Sheet used in Malta.**

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